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SCHEDULE OF GENERAL REQUIREMENTS FOR T.I. PROJECT

I Letter of Intent

A. Rent at least the following equipment:

1. Univac 490 computer
2. High speed printer with synchronizer and control unit
3. FH-880 drum with synchronizer and control unit
4. Uniservo IIA, magnetic tape units with synchroniser and control unit (with at least one unit compatible with IBM 729 tape)
5. 80 column card reader and punch verifier with synchronizer and control unit
6. Paper tape reader and punch equipment
7. Certain inter-face equipment for data transmission between the central site and remote problem inquiry stations

B. Delivery and installation by December 1962 in Washington D. C.

C. Final assembly in St. Paul in an isolated area (possibly classified)

D. Computer maintenance by [redacted] 25X1

E. Software provided by and developed in coordination with [redacted] may include the following: 25X1

1. Assembly program
2. Executive program
3. Algebraic compiler

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4. Input/Output handling routines

5. Library of mathematical functions

6. Sort/Merge routines

7. Library control program

F. Statement of work shall be prepared in cooperation with [redacted] personnel. Spec information will be relayed to [redacted] within 45 days after the issuance of the letter of intent.

5X1
5X1

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II Project Staff

A. Recommended Project Personnel

			Level of Effort	
1.	NPIC			
	a.	Project Director - [redacted]	Full Time	25X1
	b.	PAD Representative - [redacted] plus 1 man	Dec. '61 - Jan. '62, Half Time	25X1
	c.	Army Representative - one man	Feb. - Nov. '62, as Required	
	d.	Navy Representative - one man		
	e.	Air Force Representative - one man	Dec. '62 - Jan. '63, Full Time	
	f.	TPDS Representative	Dec. '61 - Jan. '62, Half Time	25X1
	g.	TAB Representative - [redacted]	Feb - Dec '62, as Required	
	h.	PD Representative - [redacted]	As Required	25X1
	i.	DMD Representative		
	j.	DD/S Representative	Half Time	
	k.	Programmer (TDY) - one man	Full Time	
2.	[redacted]			
	a.	Project Coordinator - [redacted]		25X1
	b.	Project Engineer [redacted]		25X1
	c.	Technical Staff -		

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d. Technical Staff [redacted] 25X1

e. Technical Staff -

f. Technical Staff -

g. Technical Staff -

h. Technical Staff -

i. Technical Staff -

j. Technical Staff -

25X1 3. [redacted]

a. D. C. Representative [redacted] 25X1

b. L. A. Representative

c. Systems Analyst, L. A. - one man

d. Program Manager

e. St. Paul Programming Supervisor

4. Equipment Contractor Representatives as required [redacted] 25X1

B. Schedule

1. Prepare request for representatives - December 22, 1961

2. Representatives assigned - January 3, 1962

3. Project kick-off meeting - January 10, 1962 (D. C. office)

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III Hardware (minimum)

A. Item Description

1. Univac 490 computer
2. High speed printer with synchronizer and control unit
3. FH-880 drum with synchronizer and control unit
4. Uniservo II-A magnetic tape units with synchronizer and control unit (at least one unit compatible with IBM 729 tape)
5. 80 column card reader and punch verifier with synchronizer and control unit
6. Paper tape reader and punch equipment
7. Certain inter-face equipment for data transmission between the central site and remote problem inquiry stations

B. Schedule

1. Review of purchase order "boiler plate" - 8 December 1961
2. Preliminary statement of work - 8 December 1961
3. Letter of intent - 15 December 1961
4. Final design concept - 8 December 1961
5. Final statement of work - 15 January 1962
6. Final A-E plan - 15 January 1962

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7. RRU acceptance of final statement of work- 22 January 1962

8. Submittal of RRU design/production schedule - 22 Jan. 1962

   a. Design/modification
   b. Special program and equipment
   c. Production)
   d. Assembly) Isolated (possibly secure) area
   e. Check-out)

9. Partial systems program loading, test and debugging on prototype 490 - July-December 1962

10. Review and confirmation of hardware configuration - September 1962

11. Checkout with special input devices - October 1962

12. Factory acceptance

13. Deliver to Bldg. 213, Washington, D. C. - 1 December 1962

14. Installation complete - 31 December 1962

15. Load - 15 January 1963

16. Debug

17. Partial run - 31 January 1963

18. Run - 31 March 1963

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IV. Special Purpose Equipment

A. Type of Equipment

1. Alpha-numeric printer (Phase I)
2. Alpha-numeric input device (Phase I)
3. Interface equipment (Phase I)
4. Measuring engine and/or viewer (Phase I)
5. Plotter (Phase I)
6. Graphic output display (Phase II)
7. Miscellaneous input-output devices (Phase II)
8. Supervisor Control Console and Display (Phase II)

B. Schedule

1. Formalize measurement hardware design concept by 15 January 1962
2. Establish requirement for "standard" I/O devices- (1) Keyboard, (2) alpha-numeric printer, and (3) inteface equipment by 15 January 1962.
3. Prepare specifications for "standard" input/output devices (including quantity, location, input size/rate, machine logic, interface, and delivery)
4. Review existing plotters and/or specify high speed plotter for on-line application
5. Review in-production input/output devices for on or off-line application [redacted] 25X1
6. Prepare specifications for on-line special purpose input or output devices

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V. Problem Material (Derivation & Analysis)

A. Problem Description

1. IORS

a. Numerical rectification of panoramic photography

b. Numerical rectification of oblique photography

c. Distance (ground) sub-routines

d. Height sub-routines

e. Error analyses

f. Application variations

2. Orientation from horizon images

3. Least squares space re-section

4. Least squares space intersection

5. Direct and inverse geodetic problems

6. Terrestrial photogrammetry

7. Camera calibrations

8. Hycon rectifier

9. Optical rectification programs

B. Schedule

1. Numerical rectification of panoramic photography

2. Distance sub-routines for (1)

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3. Error analyses for (1) and (2)
4. Flow diagrams for (1), (2), and (3)
5. Computer program for the above
6. Numerical rectification of oblique photography
7. Distance sub-routines for (6)
8. Height sub-routines for (6)
9. Error analyses for (6), (7), and (8)
10. Flow diagrams for (6), (7), (8), and (9)
11. Computer programs for the above
12. Remaining problems as determined

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VI. Software

A. Program Description

1. Problem material (worker programs)
2. Executive routine
3. Priority
4. Algebraic compiler (as mutually satisfactory and agreeable)
5. Input-output routines
6. Interrupt
7. Assembly
8. Library of mathematical functions
9. Sort and merge
10. Test routines (maintenance and programming)

B. Schedule

1. Establish programming assignments and responsibilities.
2. Evaluate and select algebraic compiler program
3. Program algebraic compiler
4. Establish schedule for worker programs
5. Schedule general programs
6. Establish special test program on the 490 prototype

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VII. Hardware Modification and Improvement [redacted] 25X1

A. Machine or program modification

1. In production process

2. After delivery

B. Schedule

1. Modification plan

2. Contract arrangements

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VIII. Maintenance

A. Type of maintenance - On-site

1. Central site equipment
2. Input/output equipment

B. Schedule

1. Confirm on-site maintenance plan
2. Standard and special purpose test equipment lists
3. Issue contract or include in statement of work
4. Confirm personnel arrangements (clearances, training, etc.)

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IX. Training

A. Type of Training

1. User (input-output)
2. Programming
3. General operation
4. Management orientation

B. Schedule

25X1

1. User training [redacted] viewpoint) to commence November 1962
2. Programming training for 8-10 NPIC personnel to be staggered over next five years.

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X. Manuals

A. Type of manual

1. Operating manuals
2. Routine and special maintenance
3. Special equipment
4. Programming
5. Installation

B. Schedule

To be determined

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XI. Computer Back-up Plan

A. Schedule

1. Confirm plan to use back-up Alwac
2. Establish or confirm contract arrangements
3. Establish schedule
4. Set up movement plan for present Alwac
5. Confirm facility plans

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XII. Security - Machine and Program

A. Item

25X1

1. [redacted] classified (SECRET) contract

2. Determine or establish security requirements

3. Facility

4. Programs

B. Schedule

1. Establish or identify security concept

2. Review system

3. Establish machine and program security plan

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XIII. Clearances

A. Schedule

1. Review manpower list and assignments

2. Submit names for clearances

3. Establish schedule of manpower use based on anticipated clearances

B. Recommended names for TS clearance

25X1 [redacted]

25X1 [redacted] - [redacted]

25X1 - [redacted] plus a Systems Analyst

Program Manager, Programming Supervisor

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